

1 CLAIMS

2 What is claimed is:

3 Claim 1. In a front vehicle suspension, wherein said
4 suspension includes a left and a right strut, each said strut
5 including a top end, a bottom end and a longitudinal
6 centerline, said longitudinal centerline defining a strut axis,
7 a left and a right structural strut tower, said left and said
8 right strut towers each including a mounting member oriented in
9 a plane substantially orthogonal with said respective left and
10 said right strut axes, said mounting members each including
11 three elongated camber slots, said camber slots on parallel
12 axes and spaced about said strut axes, said mounting members
13 having a top surface and a bottom surface, wherein said upper
14 end of said left strut attaches to said left strut tower
15 mounting member via said camber slots, wherein said upper end
16 of said right strut attaches to said right strut tower mounting
17 member via said camber slots, wherein said camber slots are
18 oriented to allow an upper portion of said strut axes to be
19 tilted toward the center of said vehicle, a suspension tuning
20 kit comprising:

21 an upper plate, said upper plate having a top surface and
22 a bottom surface, said upper plate having four substantially
23 parallel secondary camber slots, wherein three of said
24 secondary camber slots are constructed and arranged to align
25 with said mounting member camber slots, wherein one of said
26 secondary camber slots is longer than the other three secondary

1 camber slots, wherein said longer secondary camber slot aligns
2 with a drilled aperture, wherein said drilled aperture is
3 located in said mounting member of said strut tower, said upper
4 plate including at least two caster slots, said at least two
5 caster slots arranged to have substantially parallel and
6 transverse axes to said secondary camber slots and spaced about
7 said strut axis, said bottom surface including a contoured
8 cavity, said contoured cavity constructed and arranged for
9 slidably locating a strut mounting plate, said bottom surface
10 positionable parallel and juxtaposed to said top surface of
11 said strut tower mounting member;

12 a strut mounting plate, said strut mounting plate
13 including a lower plate portion, said lower plate portion
14 including a bottom surface and a top surface, said top surface
15 including an upwardly extending boss, said upwardly extending
16 boss including a bore therethrough for mounting said top end of
17 a strut member, said lower plate portion including at least two
18 threaded apertures, said at least two threaded apertures
19 arranged to align with said at least two caster slots, said
20 strut mounting plate slidably mounted within said upper plate
21 cavity, said bottom surface mounted juxtaposed to said mounting
22 member top surface;

23 a first lower plate, said first lower plate including
24 three apertures therethrough, said three apertures constructed
25 and arranged to align with said camber slots, said first lower

1 plate positioned parallel and juxtaposed to said bottom surface
2 of said mounting member;

3 a second lower plate, said second lower plate including at
4 least one aperture therethrough, wherein said at least one
5 aperture is constructed and arranged to cooperate with said
6 drilled aperture, said second lower plate positioned parallel
7 and juxtaposed to said bottom surface of said mounting member;

8 wherein said kit may be secured to said left or said right
9 strut tower, wherein at least four threaded fasteners extend
10 through said lower plates, said mounting member and said upper
11 plate, said threaded fasteners cooperating with at least four
12 threaded nuts, wherein said threaded fasteners cooperate with
13 said nuts to secure said suspension tuning kit to said strut
14 tower mounting member, wherein wheel caster and camber is
15 infinitely adjustable throughout an extended range.

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17 Claim 2. The suspension tuning kit as set forth in claim
18 1 wherein said first lower plate is substantially L-shaped,
19 said L-shaped first lower plate including a top surface and a
20 bottom surface.

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22 Claim 3. The suspension tuning kit as set forth in claim
23 2 wherein at least three of said four threaded fasteners are
24 weldably secured to said bottom surface of said first lower

1 plate, said at least three threaded fasteners extending upward
2 and substantially perpendicular to said top surface.

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4 Claim 4. The suspension tuning kit as set forth in claim
5 2 wherein said first lower plate is constructed from metal.

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7 Claim 5. The suspension tuning kit as set forth in claim
8 1 wherein said second lower plate is substantially rectangular
9 in shape, said second lower plate including a top surface and
10 a bottom surface, wherein at least one of said four threaded
11 fasteners is weldably secured to said bottom surface of said
12 second lower plate, said at least one threaded fastener
13 extending upward and substantially perpendicular to said top
14 surface.

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16 Claim 6. The suspension tuning kit as set forth in claim
17 5 wherein said second lower plate includes a means for
18 preventing rotation of said second lower plate with respect to
19 said strut tower mounting member.

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21 Claim 7. The suspension tuning kit as set forth in claim
22 6 wherein said means for preventing rotation includes a
23 threaded aperture, wherein said threaded aperture is
24 constructed and arranged to cooperate with a second drilled
25 aperture located in said mounting member of said strut tower,

1 wherein a threaded fastener extends downward through said
2 mounting member and threadably engages said threaded aperture,
3 whereby rotation of said second lower plate is prevented.
4

5 Claim 8. The suspension tuning kit as set forth in claim
6 1 wherein said upper plate includes a contoured outer edge,
7 wherein said contoured outer edge is constructed and arranged
8 to permit extended movement of said upper plate with respect to
9 said strut tower.
10

11 Claim 9. The suspension tuning kit as set forth in claim
12 8 wherein said upper plate includes at least one rounded corner
13 extending between said bottom surface and said contoured edge,
14 wherein said rounded corner is constructed and arranged to abut
15 an inner fender wall.
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17 Claim 10. The suspension tuning kit as set forth in claim
18 1 wherein said upper plate is made of steel.
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20 Claim 11. The suspension tuning kit as set forth in claim
21 1 wherein said upper plate is made of aluminum.
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23 Claim 12. The suspension tuning kit as set forth in claim
24 1 wherein said upper plate is made of titanium.
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2 Claim 13. The suspension tuning kit as set forth in claim
3 1 wherein said strut mounting plate bore includes at least one
4 snap ring groove, wherein said bore is constructed and arranged
5 to accept a hemispherical connector member, wherein said
6 hemispherical connector member is constructed and arranged to
7 pivotally secure said top end of said strut member, wherein
8 said at least one snap ring groove cooperates with at least one
9 snap ring to secure said hemispherical member.

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11 Claim 14. The suspension tuning kit as set forth in claim
12 1 wherein said camber adjustment range facilitates adjusting
13 said strut axis up to about three degrees.

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15 Claim 15. The suspension tuning kit as set forth in claim
16 1 wherein said camber adjustment range facilitates adjusting
17 said strut axis from about 0 degrees to about -3 degrees.

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19 Claim 16. The suspension tuning kit as set forth in claim
20 1 wherein said caster adjustment facilitates adjusting said
21 strut axis up to about three degrees.

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23 Claim 17. The suspension tuning kit as set forth in claim
24 1 wherein said caster adjustment facilitates adjusting said
25 strut axis from about +4 degrees to about +7 degrees.